

In paragraph 1 of the Office Action, claims 1-21 were withdrawn from further consideration as being drawn to a non-elected species. With respect to generic claims, the Office Action refers to MPEP §806.04(d), providing that “a generic claim should include no material element additional to those recited in the species claims, and must comprehend within its confines the organization covered in each of the species.” Applicant respectfully submits that at least independent claim 22 is generic to all species of the invention. Independent claims 1 and 19 have been amended to clarify that generic claim 22 does not include any “material element additional to those recited in the species claims.” Moreover, Applicant submits that claim 22 “comprehends within its confines the organization covered in each of the species.” For at least these reasons, Applicant submits that at least claim 22 is generic.

Claims 22-29 were rejected under 35 U.S.C. §112, second paragraph. In this context, the Office Action correctly indicates that “a term in a claim may not be given a meaning repugnant to the usual meaning of that term.” At the outset and notwithstanding the discussion below, Applicant respectfully reminds the Examiner that the term “repugnant” is defined as “contradictory” or “inconsistent.” A parallel meaning or alternative meaning is not contradictory or inconsistent with a purported “usual” meaning of a particular term.

The Office Action alleges that the term “polarization” has an accepted meaning in an optical context. To the contrary, however, Applicant respectfully submits that the Examiner’s indication of “accepted meaning” is incorrect. The McGraw-Hill Dictionary of Scientific and Technical Terms defines “polarization” in numerous contexts, the first of which being “[t]he process of producing a relative displacement of positive and negative bound charges in a body by applying an electric field.” The second definition for “polarization” is “[a] vector quantity equal to the electric dipole moment per unit volume of a material. Also known as dielectric polarization; electric polarization.” A photocopy of page 1239 from the above-mentioned dictionary is attached. In light of the present specification and the numerous accepted definitions of the term “polarization,” Applicant respectfully submits that this rejection is misplaced.

The Office Action also alleges that the use of “polarization pattern” and “dielectric constant” in the same claim is deemed to be indefinite. Although the Office Action does not explain how such a conclusion is reached, Applicant assumes that the conclusion stems from the improper understanding that “polarization” has its “accepted meaning” in an optical context. For the reasons noted above, then, Applicant submits that this assertion is misplaced. Moreover, “dielectric” is defined in the McGraw-Hill Dictionary as “[a] material which is an

electrical insulator or in which an electric field can be sustained with a minimum dissipation in power.” Page 447 from the McGraw-Hill Dictionary is also attached. Certainly, then, the use of these terms in the same claim is definite, and Applicant submits that the subject matter would be readily understood by those of ordinary skill in the art.

In view of these definitions and in light of the specification, Applicant submits that the claims satisfy the requirements of 35 U.S.C. §112, second paragraph. Withdrawal of the rejection is respectfully requested.

Claims 22-29 were rejected under 35 U.S.C. §103(a) over U.S. Patent No. 1,910,709 to Mortenson in view of U.S. Patent No. 5,325,067 to Masuda et al. and U.S. Patent No. 4,553,089 to Lewiner et al. This rejection is respectfully traversed.

As referred to in the Office Action, Mortenson references the use of a “metal salt” that is “half-conducting.” This reference, however, implies conduction via “free (to move) electrons” versus “bound (cannot move) electrons,” which illustrates that the Mortenson material is a semi-conductor material and not a dielectric material. The subject matter according to the invention is premised in part upon “bound electrons,” which are the subject of the polarization patterns (angstrom scale separation of plus and minus charges). Note the above definition

of "polarization." Polarization is a dielectric material property at all frequencies (0 Hz to 10^{18} Hz). In distinction, optical polarization is referenced to the direction of orientation of the electric field component in optical fields (10^{15} Hz frequency electromagnetic fields) manipulated by "polaroid" optical absorption material. In this context, Mortenson thus lacks at least any materials that generate an opposite polarization pattern based on the polarization pattern of a to-be-detected entity.

Additionally, as described in the specification, the polarization pattern is derived according to a spatial gradient of the to-be-detected entity local electric field distribution which drives the dielectrophoresis force. See, for example, the specification at page 3, line 21 through page 4, line 24. Claims 22 and 27 have been amended to clarify and more clearly set forth this distinction. Mortenson, on the other hand, does not relate in any manner to spatial gradients or dielectrophoresis. Applicant notes that the science of dielectrophoresis was unknown at the time the Mortenson patent issued.

For at least these reasons, Applicant respectfully submits that the rejection is misplaced.

The secondary references to Masuda and Lewiner describe traditional capacitor (free electrons) components for impedance matching devices -- metal leads to metal plates (free electrons) enclosing a dielectric material (bound

electrons). In contrast, the selective polarization matching filter according to an exemplary embodiment of the invention configures a distinctive capacitive-like element and component such as metal leads to dielectric plates (bound electrons) enclosing an "entity-specific" dielectric material (bound electrons). This and other compositions of materials are configured to thus generate an opposite polarization pattern based on a polarization pattern of a to-be-detected entity according to a spatial gradient of the to-be-detected entity local electric field distribution. The matching filter according to the invention thus operates according to the principles of dielectrophoresis, which involves a higher level of subtle electric effects completely unrecognized in Masuda or Lewiner, taken singly or in combination with Mortenson. For these reasons also, Applicant respectfully submits that the rejection is misplaced.

With respect to dependent claims 23-26, 28 and 29, Applicant submits that these claims are allowable at least by virtue of their dependency on an allowable independent claim.

Reconsideration and withdrawal of the rejection are respectfully requested.

In view of the foregoing amendments and remarks, Applicant respectfully submits that the claims are patentable over the art of record and that the application is in condition for allowance. Should the Examiner believe that

AFILANI, Thomas
Serial No. 08/840,069

anything further is desirable in order to place the application in condition for allowance, the Examiner is invited to contact Applicant's undersigned attorney at the telephone number listed below.

Prompt passage to issuance is earnestly solicited.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: Alan M. Kagen
Alan M. Kagen
Reg. No. 36,178

AMK:jls
1100 North Glebe Road, 8th Floor
Arlington, VA 22201-4714
Telephone: (703) 816-4000
Facsimile: (703) 816-4100